IDAHO
DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

OXBOW HATCHERY

Annual Report

1 October 1983 - 30 September 1984

by

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Fish Hatchery Superintendent I

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ABSTRACT

During the 1983-84 season, 1,116 steelhead were trapped and 279 females were spawned to produce 1,313,668 green eggs. A total of 598,404 eyed eggs were shipped to Niagara Springs in May. Oxbow retained 385,808 eyed eggs and produced 365,623 steelhead fry weighing 203.1 pounds. No salmon were trapped this season.

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Fish Hatchery Superintendent I

NOTE: This report was written completely from records except the Introduction and Operation sections. The Improvements section was copied verbatim from Jim McLin's annual narrative. Mr. McLin retired in October.

OBJECTIVES

The objectives of the Oxbow Hatchery are:

1. Trap steelhead and chinook salmon returning to Hells Canyon Dam.

2. Hold adult steelhead in the Oxbow ponds until sexual maturity.

3. Spawn steelhead and incubate eggs to the eyed stage for transfer to production stations.

4. Rear available steelhead eggs to the fry stage and release them.

5. Assist with the release of steelhead smolts into the Snake River below the Hells Canyon Dam.

INTRODUCTION

The Oxbow Hatchery is located on the Oregon side of the Snake River one-half mile downstream from the Idaho Power Company's Oxbow Power Plant. The Oxbow Hatchery is owned and financed by Idaho Power Company (IPC) as part of their fisheries mitigation program.

The primary objective of the Oxbow Hatchery is to trap and spawn the steelhead that return to Hells Canyon Dam and eye the eggs. Adult steelhead trapped at the Hells Canyon Dam are transported to the Oxbow Hatchery by IPC personnel.

Egg taking generally starts in early April and ends by early June. Eyed steelhead eggs are transported to the Niagara Springs Hatchery for rearing. The smolts are then returned to Hells Canyon for release.

HATCHERY OPERATION

Water is supplied to the hatchery directly from the Snake River by four electric pumps. Two large pumps supply water to the holding ponds and raceways. Two smaller pumps supply the incubation system. Only one pump from each pair is used during normal operation, the other is a stand-by and is serviced by a separate power source.

There are four adult holding ponds; two measure 34^1 x 54^1 x 8' and two are 34' x 104^1 x 8^1. Normal operating depth in these ponds is 4.5'. The ponds are equipped with power-assisted crowders, fish loading and unloading equipment and sorting tanks.

Eggs are eyed in Heath incubators. There are 12 stacks with 14 operational trays per stack. The top two trays are used as settling chambers during the turbid spring flows of the Snake River. There is space to incubate three million steelhead eggs, and up to 1.6 million could be hatched. There are accommodations for 16 more stacks of trays.

Oxbow Hatchery has six 100' x 6 ' x 3' rearing raceways. There is also a 360' gravel spawning/incubation channel which is not currently in use.

TRAPPING

The Hells Canyon fish trap was in operation during September, October, November and December, 1983, and March 1984. There were a total of 1,116 steelhead trapped at Hells Canyon this season. No salmon were trapped because of high flows and an inoperative trap. The majority of the steelhead were trapped in the old floating trap, as construction was not complete on the new trap (McLin 1984). A trapping summary is given in Table 1.

TRANSPLANTING AND DISPOSITION

Of the 1,116 steelhead trapped at Hells Canyon, 350 (31.3%) were transplanted into the Boise River; 150 (13.4%) were returned to the Snake River prior to spawning; 279 females (33.9%) and 35 males (3.1%) spawned; 157 (14%) were returned to the Snake River because spawning was suspended due to high water. Pre-spawning mortality included 55 females (4.9%) and 90 males (8.0%).

EGG TAKING

Egg taking commenced on March 25 and ended on May 2, 1984. The 279 female steelhead yielded 1,313,668 green eggs, of which 75.8% eyed-up for a total of 996,460 eyed eggs. Niagara Springs Hatchery received 610,652 (61%) of the total, and Oxbow retained 385,808 (29%). A summary of egg taking is shown in Table 2.

PRODUCTION

Oxbow Hatchery retained 385,808 eyed steelhead eggs for rearing and as a back-up supply should another station have a large fish loss. A total of 365,632 steelhead fry (94.8% rearing survival) were released into the Little Salmon River Drainage at a size of 1,800 per pound. A total of 203.1 pounds of fry were produced.

These fry gained 88.1 pounds on 250 pounds of OMP for a conversion rate of 2.84. Total feed cost was $72.25, or $.82 per pound gained.

FISH HEALTH AND TREATMENTS

Pre-spawning mortality of adult steelhead totaled 55 females and 90 males. This loss accounted for 12.9% of the total run. Adults were treated periodicaly with 400 g of Malachite Green for one hour. Up to eight treatments per month were used in the warmwater temperature months and as few as two treatments per month were used in the coldwater temperature months.

Table 1. Summary of Hells Canyon Fish Trap operation, 1983-84.

Date	Steelhead trapped	Percent of run
9/83	51	4.0
10/83	843	76.0
11/83	188	17.0
12/83	6	.5
1/84	0	
2/84	0	
3/84	28	2.5
Total	1,116	100.0

Table 2. Summary of egg taking at Oxbow Hatchery, 1984.

Date	Number of females spawned	Number of eggs	Eggs/ female
26 March	13	59,500	4,576.9
2 April	62	285,984	4,612.6
10 April	54	228,480	4,231.1
18 April	89	440,300	4,947.2
25 April	15	75,684	5,045.6
2 May	46	223,720	4,863.5
Total	279	1,313,668	x = 4,708.5

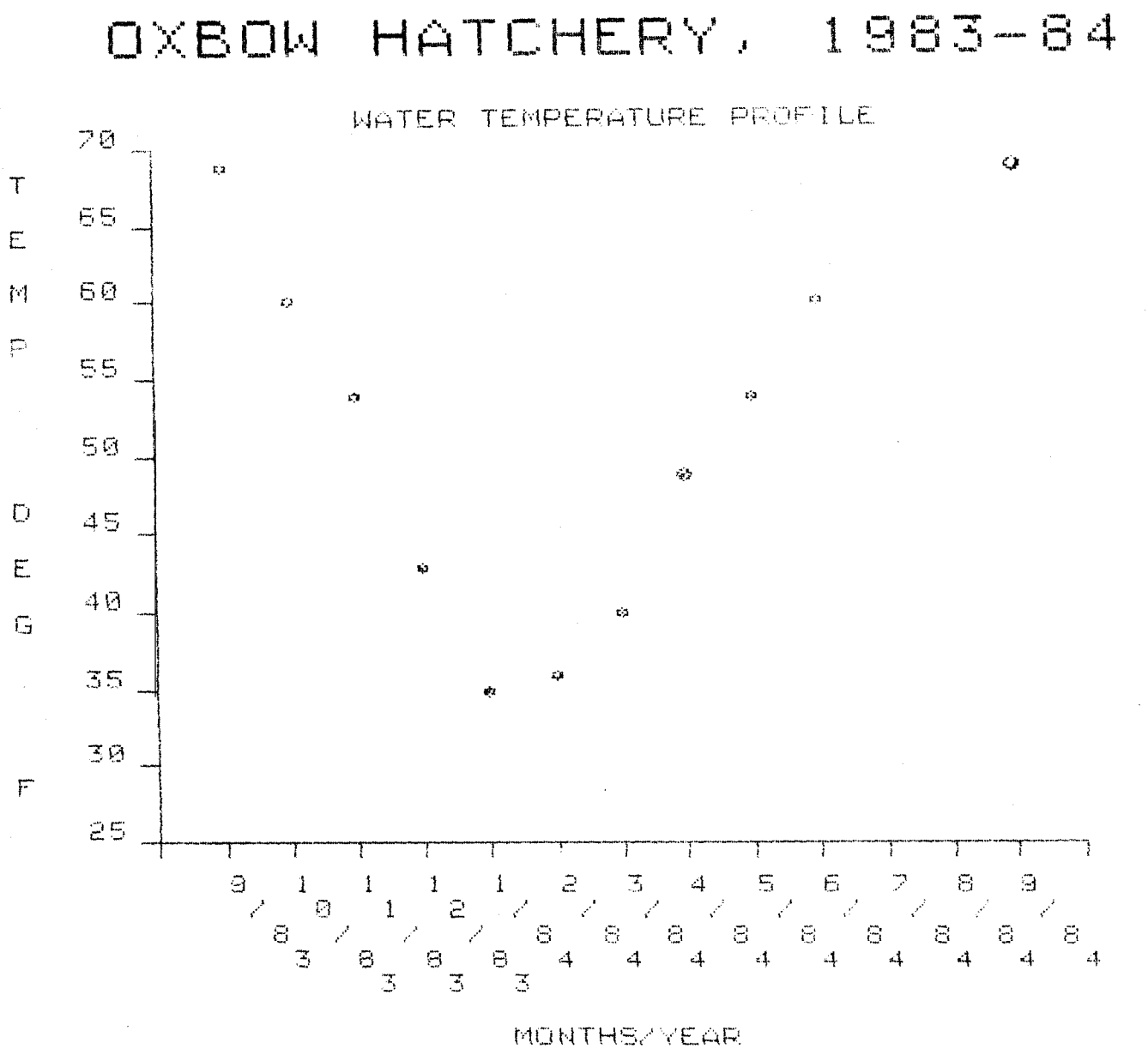

Figure 1. Water temperature profile, 1983-84, Oxbow Hatchery.

High egg losses were attributed to spawning techniques and high silt loads in the incubators. Disease or fungus was not reported to be a problem. Eggs were flushed systematically with 3 ounces of a 1/100 Malachite Green solution in each stack three times per week.

No disease condition was reported in the steelhead fry, and rearing survival was high (94.8%).

IMPROVEMENTS AND MAINTENANCE

The pump platform was raised to assure its safety during high water. New pumps were installed for the ponds and for the incubators. The irrigation system was improved by the addition of a new pressure pump. New, larger oil reservoirs were put on the main pump and a new self-greasing device was experimentally put on the new small pump.

One large crowder had the wheels and bearings replaced. New screens were installed on both large crowders. The holding ponds were cleaned thoroughly and the cracks were patched with asphalt emulsion. The low water alarm was updated.

Much yard work was done including trimming the trees, caring for the lawn, planting a flower garden and hauling off 20-years accumulation of trash. All weeds except those near the water have been sprayed at least once with Atrazine and once with Round-up.

Updating on the mobile home included some rewiring and other minor repairs. New carpet was laid in this residence.

The old carpet from the house was laid in the crew quarters and the office of the hatchery building. The hatchery building was painted. Repairs and changes were made in the hatchery water system. New hatching baskets were received and are waiting to be modified and installed in the incubators (McLin 1984).

LITERATURE CITED

McLin, J. 1984. Hatchery reports and annual narrative, Oxbow Hatchery.